Virtual Learning Environments at Lingnan University

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Table of Contents

Table of Figures

Table of Tables

Executive Summary

Technology has become an integral part of both social and educational aspects of daily life. With each new smart phone, laptop feature, and mobile application, students find more convenient technical means of staying connected, and gathering and sharing information. With this movement towards such a technological society, education too must evolve to include technologies well suited for learning purposes. In order to continually engage students in learning, educational systems all over the world need to incorporate new technologies into classroom activities.

The project team will be working with Lingnan University which is a small, liberal arts school in Hong Kong. Lingnan wants to increase the virtual learning technologies used in their educational system. These virtual learning environments can be either synchronous, requiring contingency, or asynchronous where users can access information at different times. Lingnan University wants to increase use of both of these technologies to improve the quality of their students' educational experience. Some faculty members are resistant to change their teaching styles and methods to incorporate technology. The University is beginning to expand virtual learning technologies into classrooms, and would like to document the impact of these new technologies. With this documentation, Lingnan hopes to demonstrate the advantages of virtual learning.

Second Life is the primary technology Lingnan University is interested in expanding. This technology is a free, synchronous, online software where users can create avatars and interact in a virtual world. While Lingnan already uses Second Life in visual studies courses, they would like to expand its use into language learning. Additionally, Lingnan University will

be piloting an English 101 course where students will use iPads to participate in online discussions and Second Life interactions.

The team will identify potential challenges associated with the implementation of new virtual learning technologies. The research plan includes interviews, focus groups, surveys, observations, and pilot programs for the integration of virtual learning environments into classrooms. Focus groups and surveys will be used to obtain data on common attitudes related to virtual learning environments. After analyzing the acquired data, we will create user guides to simplify the process of learning how to use virtual learning environments that students and faculty are not familiar with. The group will also be assisting Lingnan University with virtual learning pilot programs. These pilot programs will involve using iPads with Second Life and Moodle applications for the English 101 class. We will evaluate the success of these pilot classes through the use of questionnaires provided by Lingnan University.

To conclude, the group will determine technological environments that are compatible with Lingnan University's curriculum and faculty. We will also create recommendations for the integration of these technologies into Lingnan's classrooms. With the completion of the project, students at Lingnan University and other institutions will have more options to effectively and comfortably learn English language skills. The group will conclude the project with user guides for language learning programs as well as the compiled data on the attitudes of students who currently or will in the future use virtual learning environments for language learning.

1. Introduction

Technology has become an integral part of both social and educational aspects of daily life. With each new smart phone, laptop feature, and mobile application, students are finding the technical means to stay connected, and gather and share information. With this movement towards such a technological society, education too must evolve to include technologies well suited for learning purposes. In order to continually engage students in learning, educational systems all over the world need to incorporate new technologies into classroom activities.

Hong Kong is a very technologically advanced city, Its tools and techniques for both social and academic communication are rapidly evolving. Lingnan University (2010) is a publicly-supported liberal arts university in Hong Kong that was granted full university status on July 30, 1999 (History and Development). The University wants to be at the forefront of using the best suited technological environments for its curriculum and educational goals. Lingnan wants to devise a strategy that facilitates the integration of new educational technologies into their existing programs and become an educational leader.

Lingnan University's Teaching and Learning Centre director, Dr. David Kennedy, has conducted research on using technology for learning, teaching and social purposes (Cabrera, et al., 2010). In order to better understand the use of technologies, a group of students from Worcester Polytechnic Institute (WPI) conducted a technological inventory at Lingnan University. They concluded that students at Lingnan prefer to see a wider use of technology in their education. This research led to a number of technologies that could potentially be used to improve education at Lingnan. One of the most attractive technologies is the virtual learning environment (VLE). The use of VLEs, especially Second Life, has been studied at other universities and institutions for use with language learning. Second Life has been integrated into

curricula at public universities in Texas as well as at Hong Kong Polytechnic University, and both have seen significant benefits from the program (Nutter, 2009; Research SEA, 2010). However, there are drawbacks of Second Life such as interruptions, unwanted pornography, and the need for a large internet bandwidth, which can cause problems when using the program for educational purposes (Lagorio, 2007).

Virtual learning environment have been used at Lingnan for demonstrations of artistic skills, however there is no virtual environment used for language learning. Additionally, integrating new technologies is a challenge. Some faculty may not have the knowledge, the time, or the desire to use such technologies. From a different perspective, it is possible that technologies might not increase student learning but could distract them from their studies.

The goal of the project will be to identify potential challenges associated with the implementation of new virtual learning technologies. The research plan includes interviews, focus groups, surveys, observations, and pilot programs for the integration of virtual learning environments into classrooms. Focus groups and surveys will be used to obtain data on common attitudes related to virtual learning environments. After analyzing the acquired data, we will create user guides to simplify the process of learning how to use virtual learning environments that students and faculty are not familiar with. The group will also be assisting Lingnan University with virtual learning pilot programs. These pilot programs will involve using iPads with Second Life and Moodle applications for the English 101 class. We will evaluate the success of this pilot class through the use of questionnaires provided by Lingnan University.

2. Background

To provide a better understanding on how to use virtual learning environments (VLE) in a classroom setting, the team will discuss several relevant topics. The first section contains a discussion of different students' learning styles to help explain how to improve learning among students. The next sections contain information on several virtual learning environments. The virtual learning technologies such as Second Life, Moodle, Blackboard and E-Porfolios have several benefits and disadvantages. The team categorized the technologies into synchronous and asynchronous learning environments. The final section describes Lingnan University and their current awareness and use of virtual learning environments.

2.1 Learning Styles

There are many different learning styles, which are important to understand for educational purposes. This information will help faculty members understand how to improve students' learning. This section of the chapter contains a discussion of two learning styles models. These will give the team a better perception of the different ways learning can be approached. The research will provide the team with knowledge on how to approach different learning styles at Lingnan University.

2.1.1 Kolb's Experiential Learning Model

College students have knowledge, values and intentions that influence the way they behave and learn (Kolb, 2004). Learning usually involves four phases: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC) and active experimentation (AE). Furthermore, learning styles can be divided into four sections of preference: accommodating, converging, assimilating and diverging, which are represented in Figure 2.1.1

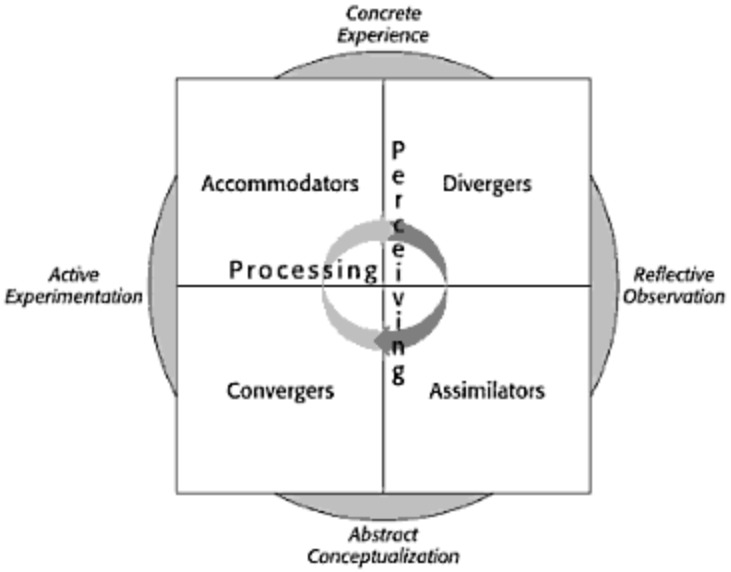

Figure 2.1.1: Learning Styles Inventory (Kolb, 2004, p. 267)

Accommodating style individuals prefer to learn when they are involved with the topic (Kolb, 2004). Their dominant learning abilities are AE and CE (Kolb & Kolb, 2005). Individuals who exercise the accommodating style learn mainly from hands-on experience and tend to act on feelings rather than logical analysis. When it comes to problem solving, these individuals rely on people for information instead of their own technical analysis. They enjoy working in teams where they can communicate and work together with others. This learning style is predominant with people in action-oriented careers such as business and marketing.

Individuals with converging styles learn through solving problems (Kolb, 2004). They are interested in finding the practical application of ideas. Their dominant learning abilities are AC and AE (Kolb & Kolb., 2005). Converging style individuals tend to be technical in nature and do not perform well with social or interpersonal issues. These individuals enjoy laboratory assignments and simulations where they can put their knowledge to the test. Technology-based careers are best for people with this learning style.

Assimilators are theorists who learn better with abstract ideas and enjoy constructing models (Kolb, 2004). They tend to be concise and logical. Their dominant learning abilities are AC and RO (Kolb & Kolb, 2005). These individuals have the ability to grasp a wide range of material that they can use to create a concise, simple form to understand. Their theories have more logical soundness than practical values. They are more interested in ideas and abstract concepts than in people. People with this learning style often hold information and science careers.

Diverging style individuals learn by observing and making sense of experiences (Kolb, 2004). They benefit from recording their thoughts in a log. These individuals' dominant learning abilities are CE and RO (Kolb & Kolb, 2005). They tend to generate many ideas in a brainstorming situation and enjoy seeing these ideals from several points of view. Diverging individuals usually care a lot about culture and like to gather information. They enjoy being in group activities where they can have feedback on their ideas and listen to new ones. This learning style is predominant with people in art careers.

2.1.2 The Felder-Silverman Model

According to the Felder-Silverman Model, there are five dimensions of learning styles that can be used to describe most students (Felder & Silverman, 2002). The dimensions are perception, input, organization, processing and understanding. Furthermore each of these dimensions has two preferences that a student might possess. All of the dimensions and their subsections are represented in Table 2.1.2.

Table 2.1.2: Dimensions of Learning and Teaching Styles (Felder & Silverman, 2002, p. 675).

Preferred Learning Style		*Corresponding Teaching Style*	
sensory / intuitive	perception	concrete / abstract	content
visual / auditory	input	visual / verbal	presentation
inductive / deductive	organization	inductive / deductive	organization
active / reflective	processing	active / passive	student participation
sequential / global	understanding	sequential / global	perspective

In the perception dimension the student's preferred strategy to perceive the world can be identified (Felder & Silverman, 2002). Sensors prefer facts and data and dislike unexpected outcomes during experimentation. They enjoy solving problems using standard methods and are uncomfortable with complications. Sensors are good at memorizing facts, and they are patient when it comes to making decisions. At the other end of the spectrum, Intuitive individuals prefer principals and theories. Intuitors favor innovation and avoid repetition. When it comes to experimentation, they get bored by details and like to experience complications. They are also skilled at grasping new concepts. Intuitors tend to be careless due to their tendency to respond quickly.

In the input dimension, the student's preference on how to receive data from the world can be found (Felder & Silverman, 2002). Visual learners remember facts better when they are presented in a visual manner. They enjoy pictures, diagrams, and flow charts that facilitate remembering the material. If facts and details are presented orally, visual learners are likely to

forget them. Conversely, auditory learners retain orally-presented material better and if they repeat what they hear, that information will not be forgotten.

Inductive and Deductive learners lie in the organization dimension (Felder & Silverman, 2002). Induction is a reasoning method that interprets a particular event and forms generalized idea such as a rule or theory. Deduction is the opposite of Induction, meaning that from a generalized theory, the outcome of a particular event can be predicted. Induction is the natural human learning style which can be explained further with the following example. A baby might think abstractly, "If I throw my bottle and scream loudly, someone will eventually show up" (p. 3); this is deductive reasoning. Inductive reasoning would be shown after the baby had screamed and thrown the bottle several. The baby will use inductive reasoning by believing that throwing a bottle and screaming loudly will result in attention.

Methods which convert information into knowledge can be divided into two categories: active experimentation or reflective observation, both of which are part of the processing dimension (Felder & Silverman, 2002). Active and reflective learners are closely related to the extravert and introvert of the Jung-Myers-Briggs model. Active learners, as extraverts, prefer to re-enforce the learned information by discussing it and/or explaining it to someone else in the external world. Reflective learners, as introverts, are more comfortable examining and manipulating the data within their own mind.

Global and sequential learners are within the understanding dimension (Felder & Silverman, 2002). Sequential learners follow a linear process when solving problems. They can work with the given material even though they might not understand it completely. Global learners do not follow a linear process. They take intuitive leaps and may not be able to explain

the steps taken to their results. Global learners are proficient at divergent thinking and synthesizing information.

2.2 Synchronous environments

A synchronous technology is an environment that requires concurrent interactions. (Foreman, 2003). An example of such a technology would be a simple chatting program where two users are online at the same time to chat. Other synchronous environments include video conferencing programs or online virtual worlds such as Second Life. Second Life is the focus of our research on synchronous environments.

2.2.1 Second Life

In 1999, Philip Rosedale founded the Linden Lab (2002) and launched Second Life in 2003. Second Life is a free program that enables users create an avatar in a virtual world, hence the name "Second Life". In this virtual world, users can customize their avatars in any way they choose. Users can spend real money to purchase virtual money, used to buy in-game items ranging from special clothing to buildings. Using their avatar, users can peruse the virtual world, visit places owned and built by other people, as well as meet other avatars belonging to people from around the world.

At first glance, Second Life may appear to be a video game since the original purpose was purely leisure. Second Life provides a second world, with different constraints and laws of physics. In Second Life one can impersonate any character and meet any other avatar in the virtual world. Since the world of Second Life allows "teleportation" and "flying", one doesn't need to travel to meet someone else. A person in the USA can seamlessly meet the avatar of a person in Japan and interact. Hence, Second Life became the ultimate program for distance interaction (Lagorio, 2007). Second Life, offering a realistic simulation, can be used for many

purposed and interactions. This versatility makes it an excellent program for interacting in new contexts. With these new ways to interact, education has been introduced to Second Life. Since one doesn't need to be embarrassed by making a mistake in a video game, its adoption as an educational platform has increased.

The makers of Second Life have noticed the potential for virtual learning in their program (Linden Research, 2009). They provide a complete website with information and guides for teaching in Second Life. Language education is rapidly expanding in Second Life. People who have trouble interacting socially may be able to interact normally through a virtual reality (Rogers, 2010). It was observed that autistic people could interact normally with other users when they are in a video game. Therefore, individuals with slight social anxiety would benefit from a Second Life experience.

Second Life users can purchase "islands". Islands are basically large pieces of virtual land they can completely customize and even make private. In 2007, the Kyoto Gakuen High School, in collaboration with Californian schools, created the Pacific Rim Island (McNicol, 2007). This island enables Japanese and American students to interact and learn each others' languages in order to prepare for an exchange program. Language learning is so important in Second Life that a few companies have opened businesses, just teaching languages in Second Life (Erard, 2007). A company called Language Lab created their own educational island. For roughly five U.S. dollars per hour, they teach general English in addition to preparing students for exams such as the Test of English as a Foreign Language (TOEFL).

Language is not the only subject taught in Second Life. The University of Texas system invested a quarter of a million dollars to develop educational programs in Second Life (Haurwitz, 2009). Texas students will soon be able to earn credit hours by attending classes in

Second Life, which will revolutionize online education (Nutter, 2009). Hong Kong Polytechnic University designed a complete virtual campus in Second Life and opened it in September 2009 (Research SEA, 2009). They also hosted SL Actions 2009, the first 48-hour research conference in Second Life..

Cost Helper (2007) is a company that evaluates the cost of products' usage, including Second Life. While creating a simple avatar and traversing through the virtual world might be free, it can become costly to own custom virtual property. Setting up a private "island" costs $1,675 and includes a $295 monthly fee. To manage such an island, one needs a "premium account" which costs $9.95 per month. Any items used in Second Life, from furniture to buildings also need to be purchased in the game. The game features ATM's that allow users to convert real money into virtual money. The exchange rate is roughly of one U.S. dollar for 266 virtual dollars, which is sufficient to purchase a virtual leather sofa. Terdiman (2006) assessed the cost of Second Life in terms of resources needed to run the program. While popular, massively multiplayer online games (MMOGs) such as World of Warcraft might require only one server to host hundreds of thousands of players on a single server, Second Life needs a server for every three users at peak hours. Kinicki and Claypool (2008) studied Second Life and determined the enormous amount of Internet bandwidth required is due to users being able to customize the world.

While the cost is not necessarily a significant drawback for large institutions, Second Life may contain several nuisances large institutions might want to avoid. In Second Life, users are free to go wherever they want. A user can thus disrupt an important conference or a class. Strangers have been found disrupting Harvard classes in Second Life (Lagorio, 2007). Since Second Life is completely liberal, allowing users to upload their own content to customize their

experience, a large amount of pornography is now present in Second Life. Since Japanese people have been driven away from Second Life, a Japanese firm called Transcosmos inc. designed the program Meet-me, a clean and secure alternative to Second Life (Associated Press, 2007).

Second Life is free and can be installed on private servers. A project called Open Simulator (2010) provides a free and open-source program that allows running virtual worlds on private servers. This program is usually used to run Second Life, hence allowing users to have their own private world, free of disruptions or undesirable activity.

2.3 Asynchronous environments

As opposed to synchronous environments, asynchronous environments do not require all the users to use it concurrently. An example of an asynchronous environment is email. One can send an email to a contact that will read the email at a later time. Other examples of more complex asynchronous environments we will assess are E-portfolios, Blackboard and Moodle.

2.3.1 Blackboard

Blackboard (2010) is software used to manage courses. Its mission is "to increase the impact of education by transforming the experience of education" (Teaching & Learning).The software is used in more than 5,000 institutions by millions of users in over 60 different countries. Blackboard is used to quickly access relevant material of a specific class. It is also used to manage assignments and deadlines. The software is accessible by any device that has access to the Internet. This enables the students to have anytime access to all the features that Blackboard offers.

Blackboard (2010) can expand the presence of the institution to all possible means that the student has available (Strategic Solutions)**.** These range from a computer to a phone with internet access. Blackboard provides means of communication between students and teachers

using the discussion boards. These can be tracked by the students to see if there are any recent posts on a specific discussion. Blackboard encourages teachers to store their materials in a way that can be accessed by the students at any given time by any means. All of the Blackboard features ensure that the students and the teacher have a pleasant experience using the software while have a positive effect on their career.

2.3.2 Moodle

Moodle is similar to Blackboard in that it provides an environment that ensures faculty and students can share and exchange information securely. Unlike Blackboard, Moodle is completely free software. As an open-source project with a G.N.U. General Public License (Free Software Foundation, 2007), GNU is a free unix-style operating system which allows users to have the freedom to share and improve the software on the system. Moodle permits anyone to access its source code and modify it. A project called Sloodle (2008) combines Second Life and Moodle for teaching purposes. Anything done in Moodle will appear in Second Life, and vice-versa.

2.3.3 E-portfolios

An E-portfolio is a dynamic and developmental space of professional presence on the web (E-Sirinsoyoz, 2010, Penn State University). It is also described as a digital collection of documents relating to a learner's progress, development and achievements (InfoNet).

Today more and more information is stored online. This online information ranges from classroom documents to resumes to even financial information. Many schools have started to be involved with this rapid online progression of documentation by using E-portfolios (E-Sirinsoyoz, 2009, HEFCE: Enhancing learning and teaching). An E-portfolio is a place for the user to collect data over an extended period of time and display that information on the web.

The most controversial issue surrounding E-portfolios is their multiple uses. This can be a benefit as well as a liability. The benefit is that E-portfolios can be used in many contexts to accomplish different goals. However, a challenge to the user is presented if E-portfolios are introduced to an educational system without a central educational concept and supervision. Users can get frustrated and confused with the many different uses.

E-portfolios provide users with a space to display their work and an area to reflect upon their past work. Many schools are starting to closely unite the concepts of Personal Development Process (PDP), E-portfolios and reflection. PDP is "a structured and supported process undertaken by an individual to reflect upon his or her own learning, performance and/or achievement and to plan for his or her personal, educational and career development" (E-Sirinsoyoz, 2005, Stefani). If universities wish to use E-portfolios as a means of reflection and student development, the university must make sure that users and staff understand the proposed pedagogical role of the E-portfolios. According to Trent Batson (2002) E-portfolios offer significant benefits to learners. "We seem to be beginning a new wave of technology development in education. There is a push to free student's work from paper and to make it organized, searchable, and transportable" (p. 1). Batson goes on to discuss how E-portfolios would allow for all these possibilities and for the evaluation of faculty, assessment of programs, certification of student work, and accreditation methods. In addition to the educational and reflective benefit to the student, Batson reveals the many advantages of online documentation of students' work. The benefits of E-portfolios extend past students, to their schools, faculty and other parties of interest. They enable students to showcase their work, skills, competencies and creativity while progressing to a final result. Once a final result has been accomplished, an evaluator can trace the student's steps in arriving at the final decision. Therefore, the evaluator

can see the students' progression. The student can also reflect back on prior work while improving it for the future. The advantages for E-portfolios are significant and benefit students, faculty and employers.

Despite E-portfolios' numerous benefits, they do have several disadvantages (E-Sirinsoyoz, 2010). One of the major disadvantages is the time needed to set up, maintain and implement E-portfolios. Staff members are required to setup an E-portfolio and put it into operation. In addition, maintenance is necessary for electronic portfolios. Technologies are always improving, and an E-portfolio need to keep pace with technological advances to be effective.

Another negative to E-Portfolios is they have a wide-variety of uses (E-Sirinsoyoz, 2010). While this can be a positive, if the scope of an E-portfolio is left open, users can get confused and frustrated. Moreover, experts argue that E-portfolios slow the progression of learning. "They require a lot of time for learners to reproduce ideas as a result of reflections" (p. 2).

E-Sirinsoyoz (2010) discusses concerns of E-portfolios in education. Difficulties are encountered while persuading staff of the potential benefits of E-portfolios and deciding on an E-portfolio system that best suits the educational goals of an institution. Our project team must be cognizant of this issue when developing our recommendations for implementing a virtual learning environment at Lingnan University.

Rosny College is a senior secondary college located in Hobart, Tasmania. In 2008 Rosny College implemented an E-portfolio that they called a Skillsbook (Sophie, 2009). This Skillsbook was designed around the functionality that is needed for the Vocational Education Training (VET) courses to provide evidence of learning. VET is a type of program which

prepares trainees for jobs based on manual or practical activities (Wikipedia, 2010, Vocational Education). The use of online communication in the form of an E-portfolio was a new phenomenon for Rosny College (Sophie, 2009). Despite encountering frustration on all fronts, Rosny College collected feedback on the 2008 Skillsbook and implemented an improved version in 2009. "From the learner's perspective, the use of an internet based tool into which they were able to upload evidence, maintain a journal and communicate with fellow [classmates] and teachers was all positive" (p. 1). Prior to E-portfolios teachers had to collect and maintain evidence of students' learning progression throughout the entire year. With the use of E-portfolios this process was streamlined for teachers. Having students "input into forums, blogs, user homepages and event attendance over a whole year brought efficiency and robustness to the assessment of competency" (p. 2).

One of the major improvements Rosny College implemented in the 2009 Skillsbook was the use of more social networking tools including walls and chat boxes (Sophie, 2009). Many college students today use social networking sites frequently. Therefore, the students would be more comfortable using an E-portfolio if it reflected a social network site with which they were already familiar. "It was noted that the transfer of learning from other social networking sites to the new Rosny site was very fast, with the average student being able to put the site to full use in under a day" (p. 4). Another improvement from the 2008 to the 2009 Skillsbook was the reduction of clutter and unneeded pages. Making the E-portfolio as straightforward as possible keeps the user from getting sidetracked on extra features. The "initial feedback [on the 2009 improvements] from both teachers and students was that the new site is very comfortable to use and to navigate" (p. 5).

Our project team can learn from Rosny College's implementation of a new Virtual Learning Environment. At Rosny College the E-portfolios advanced and enhanced the learning experience for students. It is important to focus on user feedback to improve whatever technology or environment is being implemented. In the case of Rosny College the initial implementation of the Skillsbook was frustrating for students and teacher, but after taking feedback into consideration and upgrading the Skillsbook, students and teachers attitudes towards E-portfolios improved.

2.4 Lingnan University

Lingnan University aims to take the whole-student approach to teaching and learning where they strive to educate the student not only in the classroom, but in all facets of life such as community service and student life. The use of technology in their curriculum is an important aspect that the University is looking to further develop and enhance. Departments on Lingnan's campus are constantly striving to integrate useful technologies into the learning experience for their students.

2.4.1 Technology Resources at Lingnan University

The Teaching and Learning Centre (TLC) at Lingnan University (2010) serves the University by providing technological support to teachers for use in their courses. Dr. David Kennedy, the director of the Centre, works with nine other employees such as consultants, research assistants, and educational development officers. The TLC offers seminars and resources for the faculty of Lingnan University to assist with the integration of technology into classrooms.

Additionally, Lingnan University (2010) developed a Strategic Plan for the years ranging from 2009 to 2016. This plan highlights the goals of the institution during that time period. A

key point mentioned in the strategic plan is that the University would like to further develop students' knowledge and understanding of technologies. The plan also encourages the Information Technology Services Centre to grow and expand to provide additional technology to students.

2.4.2 Technology Studies at Lingnan University

In 2010, a study was completed at Lingnan University by students of Worcester Polytechnic Institute (WPI) in order to inventory the physical resources, preferences, and knowledge of students and faculty at Lingnan with respect to technologies (Cabrera, et al., 2010). This study gave insight into the technologies that Lingnan supports for academic purposes, and identified opportunities for improvement in the future.

Lingnan University houses four language laboratories on campus primarily for use in language learning (Cabrera, et al., 2010). The capacity of these rooms varies from 27 to 34 students. In a language laboratory, there are computers for student use, as well as headphones and microphones. The room is arranged with cubicles for each computer so that students can independently practice their language skills with supervision of the professor or instructor. These four language laboratories support an Internet connection as well and language learning software. Featuring a projection screen and a lecturer podium, each language laboratory at Lingnan University can serve as an interactive classroom or provide a setting for more independent activity and practice. Lingnan also has several general computer laboratories to be used by the students for independent work.

Lingnan University supports a variety of technologies for use with education, and the study done there in 2010 made recommendations as to where the use of these current technologies could be improved (Cabrera, et al., 2010). Mostly, faculty members at Lingnan use these available technologies for presentations in the classroom. However, some faculty have

begun incorporating other technology uses to further engage the students' interest. Figure 2.4.2a highlights the most common uses of technology by members of the Lingnan University faculty.

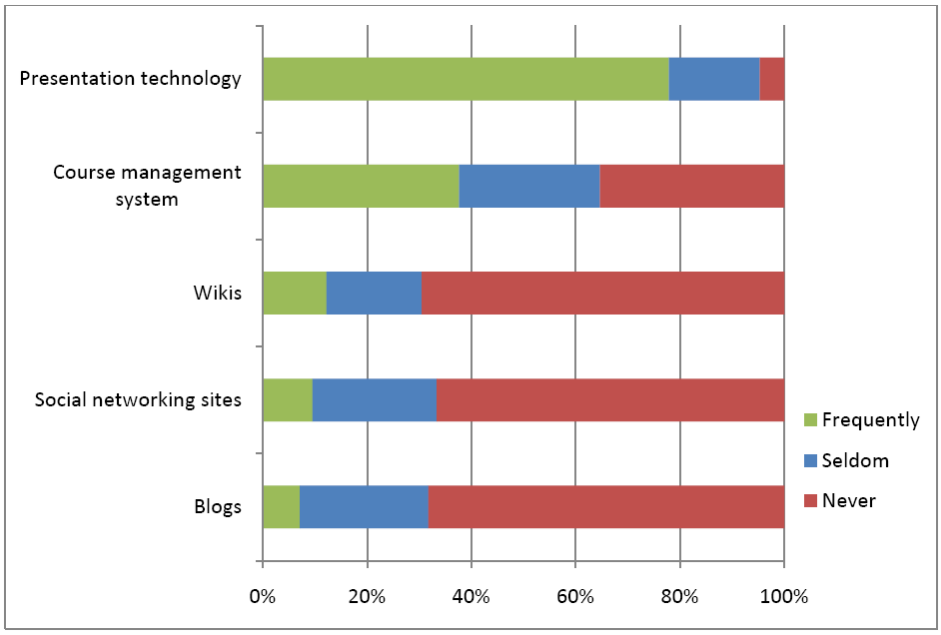

Figure 2.4.2a – Faculty Uses of Technology at Lingnan (Cabrera, et al., 2010, p. 50)

Blackboard and Moodle are programs supported by Lingnan University that are predominantly used for course management (Cabrera, et al., 2010). Faculty members have administrator access to these programs, and they can customize the site for a particular course. Students are able to view their grades, course materials, syllabi, etc. The 2010 study recommended that professors become more educated in the other functions of Blackboard and Moodle such as discussion boards and course communication in order to allow for more transactive communication where students have the opportunity to learn from one another.

E-Portfolios are a currently supported technology at Lingnan University, and each student has access to an E-Portfolio account (Cabrera, et al., 2010). This program allows for peer editing of written work and also creates a central space for students to store their writing.

There were many faculty complaints about the use of technology in a classroom or educational setting. Mainly, slow internet speeds and lack of understanding played a factor in

the faculty's frustrations (Cabrera, et al., 2010). In Figure 2.4.2b, reasons for faculty resistance to the use of technology are highlighted. These data were obtained through a mixture of a survey and interviews with Lingnan University faculty members.

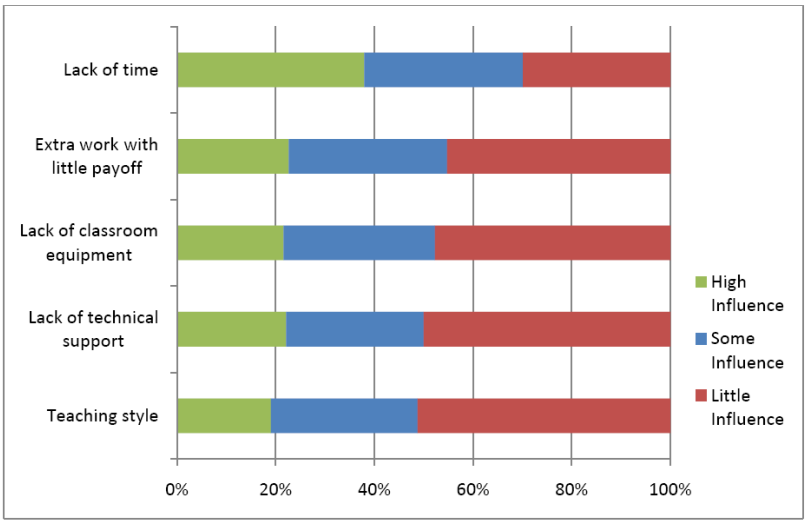

Figure 2.4.2a: Influential Factors of Faculty's Use of Technology (Cabrera, et al., 2010, p. 56)

The information gathered by the WPI students in 2010 at Lingnan University led to recommendations for technological improvements as a means of improving the educational experience (Cabrera, et al., 2010). It was suggested that network capacity be increased for the campus to provide students and faculty better access to the Internet and the educational tools available there. The team suggested an expanded use of Blackboard and Moodle in order for students to have both greater access to course information as well as opportunities to interact through the course management interfaces. Lastly, the study noticed an opportunity in social networking sites and proposed that incorporating more social activity into learning would further engage the students in practicing learned material.

2.5 Summary

Virtual learning environments can be either synchronous, requiring contingency, or asynchronous where users can access information at different times. Examples of these environments include Blackboard, Moodle, and Second Life. Learning styles affect the effectiveness of virtual learning environments for educational purposes within universities and corporations. Information concerning the pros and cons of these technologies will be used in this project to assist Lingnan University in incorporating virtual learning environments into their curriculum.

3. Methodology

The purpose of the project is to assess the attitudes and perceptions of students and faculty related to virtual learning environments. To achieve this, we have developed the following key objectives: identify virtual learning environments that are well-suited for Lingnan's curriculum, identify potential issues and problems with the potential virtual learning environments, determine methods for the integration of virtual learning environments into language learning courses at Lingnan, and develop ways to educate students and faculty on the recommended technologies. To accomplish these objectives the methodology includes interviews, focus groups, surveys, observations, and pilot programs for the integration of VLEs into classrooms. Figure 3 on page 22 shows how the methods relate to one another. On the left side, results of focus groups will be used to create a questionnaire which will evaluate the attitudes and understanding of students and faculty members regarding virtual learning environments. After analyzing the acquired data, we will create user guides for the virtual learning technologies. Additionally, the right side of Figure 3 demonstrates how the group will be involved with virtual learning pilot programs at Lingan University. We will evaluate the attitudes and perceptions of iPads and Second Life pilot programs using surveys supplied by Lingnan University.

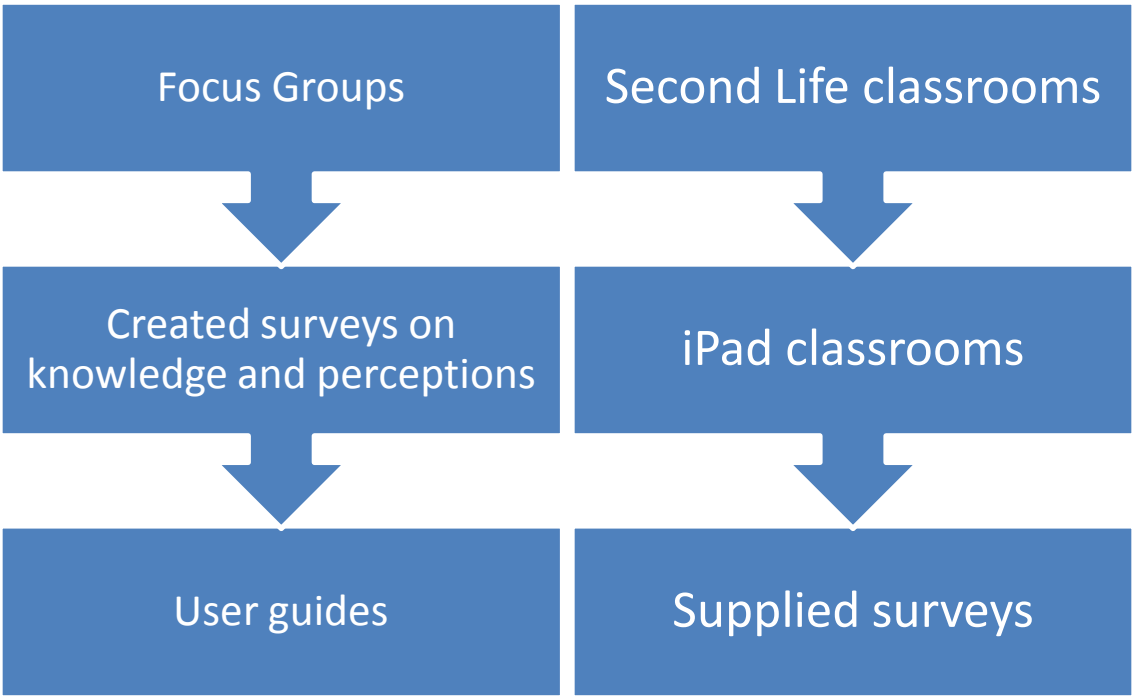

Figure 3: Methodology Outline

3.1 Identifying Virtual Learning Environments

In order to identify the virtual learning environments that will be implemented into Lingnan's courses, especially those in language learning, we will need to have in-depth discussions with the staff of the Teaching and Learning Centre (TLC). To gain their perspective on additional technology in the classroom, the group will interview faculty who are interested in furthering the use of technology. We will obtain information regarding the preferred virtual learning environments predominately from meetings with members of the TLC. A general interview protocol is outlined in Appendix C.

3.2 Identifying Potential Challenges

Each virtual learning environment (VLE) has a number of problems and considerations that must be examined before implementation into Lingnan's curriculum. Particularly, this project will assess the attitudes, perceptions, and motivations associated with virtual learning environments as they are viewed by students and faculty of Lingnan University.

3.2.1 Focus Groups

The team will conduct focus groups with students and faculty who have experience using programs such as Second Life, E-portfolios, and iPads. These focus groups will be used to identify both attitudes and key issues surrounding the technologies that will provide insight into problems that might arise with the greater Lingnan population. The research plan includes holding three focus groups with faculty members as well as three with students. A draft of the questions to be used in the focus groups can be found in Appendix D.

To select the participants for the focus groups, we will obtain two lists: one of all faculty members at Lingnan University and the other of students who have taken a class using Second Life. The group will randomly select and email thirty individuals on each list and ask for their participation in a focus group. If any of these individuals decline, the team will continue to randomly select and ask other students and faculty from the lists for their participation. For both students and faculty focus groups there will be between eight and ten participants, one moderator, and one recorder. Each focus group will meet for one hour where the participants will discuss their attitudes towards increasing technology in the classroom.

The moderator of the focus group will ask participants about the perceived benefits, concerns, and attitudes towards specific virtual learning environments in the classroom. The result will be a set of data describing the feelings of both students and faculty regarding the integration of new technologies into Lingnan University's curriculum.

3.2.2 Surveys

Appendix E contains questionnaires regarding students experience with the technologies of Moodle, iPads, and Second Life. Using the feedback generated from the focus groups, the research team will improve upon and issue these surveys to students and faculty at Lingnan University. The surveys will contain questions to gain a consensus of the perceived benefits and

issues surrounding specific virtual learning environments. The team will be looking for information regarding the willingness of the Lingnan community to incorporate virtual learning environments into the educational experience at the University. The group will aggregate students' and faculty member's questionnaire answers separately since their experiences regarding technology differ. The results will allow the Teaching and Learning Centre at Lingnan University to make decisions that will be well-accepted and beneficial to the community and the educational experience of the school.

3.3 Methods of Integration

The group will obtain detailed information on student and faculty attitudes towards implementing additional technologies into courses at Lingnan University. The research plan includes using that information to work with the pilot programs of these virtual learning environments.

3.3.1 Observing a Second Life Classroom

At Lingnan University, Second Life is currently used in visual studies courses. Student artwork is displayed in a virtual gallery in order for students to solicit feedback before it is shown elsewhere (Cabrera, et al., 2010). This Second Life experience is both enjoyable and beneficial for the students and faculty involved in these classes. The research team will observe the use of Second Life in order to get an idea of how Lingnan University's students interact using that platform. This will provide a baseline for future methods to implement Second Life into other types of courses offered at Lingnan, especially English language courses.

3.3.2 iPad Classroom

Lingnan University recently received funding to provide iPads to all students taking English 101 in the spring semester of 2011. The students will be graded based on their participation in Moodle discussions and Second Life assignments. Professors of the English 101

courses will require that students use their iPads to complete these activities. They will use the web-browsing feature of the iPad to participate in Moodle discussion boards. Additionally, an iPad application, Pocket Metaverse, will be used by students to operate Second Life on their device. The purpose of using these two methods of discussion is to provide students with the opportunity to practice their English skills in a virtual setting.

The Teaching and Learning Centre at Lingnan is concerned with how the use of iPads, Moodle, and Second Life will affect students' self-perceptions and educational progress. To analyze the ways learning styles affect the perception of using virtual learning environments, students will take the Study Process Questionnaire (R-SPQ). Additionally, the Relational Self-Concept Scale (RSCS) questionnaire will be given to students in order to determine how interactions within virtual learning environments affect students' ideas and perceptions of themselves and their learning experience. Lingnan University will provide the R-SPQ and RSCS surveys, and professors will distribute the questionnaires to the students. The research team will be responsible for recording and analyzing the results of those surveys.

3.4 Educating Students and Faculty

Introducing new technologies successfully into Lingnan's curriculum requires adequate student and faculty access to resources necessary for the use of the virtual learning environments. For all recommended technologies, the group will publish user guides that highlight the steps required to use the virtual learning environment for educational purposes. We will develop separate user guides for both students and faculty as their privileges in the virtual learning environment will differ. These user guides will provide a smoother implementation and better understanding of virtual learning environments and can become part of Lingnan University's curriculum.

3.5 Summary

The team will work with the Teaching and Learning Centre (TLC) at Lingnan University to gauge student and faculty opinions about the integration of technologies and virtual learning environments into the curriculum. Utilizing surveys and focus groups, the research will aid the TLC in understanding the perceptions, attitudes, and concerns of the community members about the virtual learning environments. Additionally, the group will work with courses piloting the use of technology in the classroom to serve as an example for future implementation. Finally, we will publish user guides containing step-by-step instructions to assist students and faculty with the use of Second Life, Moodle, and iPads. This methodology will direct the research team to meet the goals of the project.

Annotated Bibliography

Access Technologies Group, I, (2010). *Learning through simulation.* Retrieved 11/8, 2010 from, http://www.simentor.com/simulation_white_paper.pdf

Summary:

This paper explains how simulation is a good way to teach and learn. It shows examples of simulation technologies and demonstrates how successful they have been.

Relevance:

This paper will help us pick simulation environments that could fit Lingnan University. Since it gives examples and tells us how simulation works and why, we can make reasonable assumptions as to how a given environment will work out for an arbitrary setting.

Littlejohn, Allison, & Pegler, Chris. (2007). Preparing for blended e-learning. (1st Ed.). New York: Routledge.

Summary:

"This book provides teachers and lecturers with an accessible introduction to e-learning. Beginning by exploring the meaning of 'e-learning', it supports tutors in identifying how they plan to use technology to support courses that blend online and face-to-face interactions"

Relevance:

This book is contains cases of study that can be used to find the best methods of implementing E-Learning on to a curriculum.

Cabrera, B., Fraize, J., & Runkle, M. (2010). *The use of technology for teaching and learning in Hong Kong.* Unpublished IQP Project, Worcester, Massachusetts: Worcester Polytechnic

Institute.

Summary:

"The goal of this project, sponsored by the Teaching and Learning Centre at Lingnan University, was to ascertain ways to improve the use of technologies by students and faculty at Lingnan University for teaching and learning. From data collected through classroom observations, interviews, and surveys with faculty and students, several recommendations and opportunities were proposed. These included changing classroom configurations, using text messages for easier communication and investigating collaboration and social networking technologies for possible integration into the curriculum."

Relevance:

This is a past WPI IQP project. It contains research on virtual learning and overall information about Lingnan University.

Clark, L. (2010). *VET in schools: E-learning gives an employment edge*. Retrieved 11/13, 2010 from, http://www.flexiblelearning.net.au/content/vet-schools-e-learning-gives-employment-edge

Summary:

This article depicts the success of a E-portfolio trail that was conducted at Tasmania's Rosny College. Rosny College partnered with training provider Recognise-IT to embed e-portfolios in instruction, coaching, reflection and assessment. Due to the success of the trail teachers implemented e-portfolios throughout Tasmania to assist in the delivery of VET outdoor courses.

Relevance:

Could use the information from Rosny College's success in the implementation recommendation we are going to provide to Lingnan University.

CostHelper (2007). How Much Does Second Life Cost? *CostHelper*. Retrieved 11/15, 2010 from: http

Summary:

On this webpage, CostHelper assessed the cost of Second Life, whether a user want to purchase new virtual apparel or if an institution wants to build on a private island.

Relevance:

Cost assessment is important to us and will help evaluate the financial impact on Lingnan University.

Crawford, A., Schure, A., Fox, M., Small, J., Karlene, M. & Serim, F. (2010). *Knowledge delivery systems now's the time: Scalable strategies for transforming professional learning.* Retrieved 11/7, 2010, from http://www.kdsi.org/pdfs/KDS-Whitepaper.pdf

Summary:

Both this website and the KDS article give information for faculty's professional development of virtual environments. Knowledge Delivery Systems has been applied to K-12 as well as further education learning.

Relevance:

The Knowledge Delivery System provides information regarding its currently implemented system which helps educators with virtual learning environments.

E-Sirinsoyoz. (2010). The pros and cons of E-portfolios. Message posted to and retrieved 11/12, 2010, from http://sirinsoyoz.com/2010/04/21/the-pros-and-cons-of-e-portfolios/

Summary:

This blog is a discussion of the pros and cons of E-portfolios. The blog also talks about the uses of E-portfolios and some common problems that arise while implementing them for the first time

Relevance:

We are looking at E-portfolios for a virtual learning tool and this source provided information regarding the common problems associated with them and well as their usages. This blog cites thirteen respectable references such as universities and companies with expertise in virtual learning environments.

Erard, M. (2007). A Boon to Second Life Language Schools. *Technology Review*. Retrieved 11/15, 2010, from: http://www.technologyreview.com/Infotech/18510/?a=f.

Summary:

Erard tells us how Second Life language schools boomed because of the new trend of learning via Second Life. He tells us about Language Lab, that created their own island just for selling language-teaching services.

Relevance:

We might want to look into this if Lingnan professors want to teach using Second Life. We can see if we can replicate Language Lab's methods or avoid them.

Foreman, J. (2003). Distance Learning and Synchronous Interaction. *The Technology Source Archives at the University of North Carolina.* Retrieved 11/22, 2010, from: http://technologysource.org/article/distance_learning_and_synchronous_interaction/

Summary:

Foreman explains the differences between synchronous and asynchronous environments. He also provides several examples of technologies that fit in those two categories. He explains how they can be used and how their combination can work better than each technology alone.

Relevance:

This provides us a definition of synchronous and asynchronous environments and an insight in those. It will let us have another look on technologies, based on those two categories.

Goettner, P. (2000). Effective E-learning for healthcare. *Health Management Technology*.

Summary:

"The benefits of e-learning in healthcare are easy access to required education through self-paced courses, capability for easily updating the courses, and usefulness to better attract and retain qualified nurses. E-learning, like any type of advanced training, should lead to gains in customer satisfaction, productivity and eventually, increased revenues. E-learning guarantees consistency of the message--everyone in your organization gets the same information in the same way at the same time, which is crucial for compliance courses."

Relevance:

This contains research on E-Learning related but not restricted to nurses.

Haurwitz, R. K. M. (2009). *UT system campuses join virtual world.* Retrieved 11/14, 2010, from http://www.statesman.com/news/content/news/stories/local/2009/09/28/0928secondlife.html

Summary:

Haurwitz explains how Texas universities decided to invest a quarter of a million dollars in Second Life to use it for education.

Relevance:

Such a significant joint move is very interesting and might have relevant data for our project.

Jennings, N., & Collins, C. (2007). Virtual or virtually U: Educational institutions in second life. *International Journal of Social Science.*

Summary:

"This observational survey examines the virtual presences of 170 accredited educational institutions found in one such 3D virtual world called Second Life, created by San-Francisco based Linden Lab. The study focuses on what educational institutions look like in this virtual environment, the types of spaces educational institutions are creating or simulating, and what types of activities are being conducted."

Relevance:

This contains research on how educational institutions are currently using Second Life as a E-Learning method.

Kelly, R. (2005). *Harnessing technology transforming learning and children's services.* Retrieved 11/7, 2010, from http://publications.education.gov.uk/eOrderingDownload/1296-2005PDF-EN-01.pdf

Summary:

This publication discusses the benefit that can be gained by keeping an online Portfolio. It discusses the advantages for the student and businesses that can easily handle online information. It also talks about why businesses should be willing to invest in online portfolio displays.

Relevance:

The publication shows the many usages and values of an online or e-Portfolio which will be used in this project to highlight the benefits of e-Portfolios in education.

Kinicki, J., Claypool, M. (2008). Traffic Analysis of Avatars in Second Life, In Proceedings of the 18th ACM International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV).

Kirriemuir, J. (2007). *A July 2007 "snapshot" of UK higher and further education developments in second life.* Retrieved 11/12, 2010, fromhttp://www.eduserv.org.uk/~/media/foundation/sl/uksnapshot072007/final%20pdf.ashx

Summary:

This report sums up the investigation of the success of Second Life in teaching and learning in High Education in the United Kingdom. The report explores the opinions of the schools, professors and students on various specific topics from how they use Second Life to reasons for dropping it.

Relevance:

This report tells us about people's reactions in several universities in the UK. It will help us predict how Second Life might work for Lingnan University. It can also help to predict mistakes people could make and get ready for them before they happen.

Kirriemuir, J. (2008). *A spring 2008 "snapshot" of UK higher and further education developments in second life. Retrieved 11/12, 2010 from,* http://www.eduserv.org.uk/research/sl/uksnapshot052008.aspx

Summary:

This report sums up the investigation of the success of Second Life in teaching and learning in High Education in the United Kingdom. The report explores the opinions of the schools,

professors and students on various specific topics from how they use Second Life to reasons for dropping it.

Relevance:

This report tells us about people's reactions in several universities in the UK. It will help us predict how Second Life might work for Lingnan University. It can also help to predict mistakes people could make and get ready for them before they happen.

Kirriemuir, J. (2009). *Early summer 2009 virtual world watch snapshot of virtual world activity in UK HE and FE.* Retrieved 11/1, 2010, fromhttp://www.eduserv.org.uk/research/rapp0607/

Summary:

This report sums up the investigation of the success of Second Life in teaching and learning in High Education in the United Kingdom. The report explores the opinions of the schools, professors and students on various specific topics from how they use Second Life to reasons for dropping it.

Relevance:

This report tells us about people's reactions in several universities in the UK. It will help us predict how Second Life might work for Lingnan University. It can also help to predict mistakes people could make and get ready for them before they happen.

Kolb, A. Y. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning and Education, 4*(2).

Linden Lab. (2002). Linden Lab Announces Name of New Online World 'Second Life' And Availability of Beta Program. Retrieved 11/22, 2010, fromhttp://lindenlab.com/pressroom/releases/02_10_30

Summary:

This is a press release in which Linden Lab announced the release of Second Life for 2003.

Relevance:

This is interesting as it is the announcement that resulted on today's success of Second Life.

Lingnan University. (2010). About LU. Retrieved 11/5, 2010, from http://www.ln.edu.hk/info-about/

Summary:

This website provides information about the history, demographic and governance of Lingnan University. It outlines all of the responsibilities and powers of various aspects of the University, as well as describes institutions affiliated with Lingnan.

Relevance:

This source will be used to further understand the structure and organization of Lingnan University. This will allow understanding of the best groups to speak with on the campus regarding technology in education as well as the demographic of the students and courses offered.

Lowy, A., & Hood, P. (2004). Learning styles inventory. San Francisco, CA: John Wiley & Sons. Retrieved 11/12, 2010, from http://books.google.com/books?id=RvPNf89a7FYC&printsec=frontcover&dq=The+Power+of+the+2x2+Matrix:+Using+2x2+Thinking+to+Solve+Business+Problems+and+Make+Better+Decisions

McNicol, T. (2007). Second Life, Second Lingo. *The Japan Times Online*. June 17, 2007. Retrieved 11/22, 2010,from http://search.japantimes.co.jp/cgi-bin/fl20070619zg.html

Summary:

McNicol tells us about the founding of the Pacific Rim Island in Second Life, allowing students from the West and from the East to interact and learn about each other.

Relevance:

This island is especially interesting for our project as it was designed for Asian students to learn English and for American students to learn diverse languages of the East.

Nutter, D. J. (2009). Students Could Acquire Hours in Virtual Reality. *The University Star*. Retrieved 11/15, 2010, from: http://star.txstate.edu/content/students-could-acquire-hours-virtual-reality

Summary:

This article explains that with the move taken by Texas Universities investing in Second Life, students could soon be able to acquire real credit hours in Second Life.

Relevance:

Since Texas made Second Life so important in education, we could see how it is working out for them and extrapolate to have a clue of how it will go for Lingnan.

ResearchSEA. (2009). *PolyU opens virtual campus in second life.* Retrieved 11/9, 2010, fromhttp://www.rdmag.com/News/Feeds/2009/09/information-technology-polyu-opens-virtual-campus-in-second-life/

Summary:

This is an article about Hong Kong Polytechnic University opening the first full featured virtual campus in Second Life and taking the lead for virtual teaching in the city of Hong Kong.

Relevance:

This article will be used to observed the means by which other institutions in Hong Kong have implemented virtual learning environments into their curriculums.

Rogers, T. (2010). Translating Final Fantasy XI To Life. *Kotaku*. Retrieved 11/22, 2010, from: http://kotaku.com/5673585/translating-final-fantasy-xi-to-life-or-why-i-dont-have-a-butterfly-collection

Summary:

Rogers tells us about his experiences in virtual realities and in diverse massively multiplayer role playing games.

Relevance:

This long article is interesting as Rogers has a significant experience and has witnessed interesting phenomena involving people and their interactions in such virtual realities.

Second Life. (2009a). Why teach in second life? Retrieved 11/13, 2010, from http://education.secondlife.com/whysl/

Summary:

This is the official Second Life website giving the reasons why one should adopt Second Life to teach. It explains how virtual worlds can enable real life learning.

Relevance:

This website will be used to highlight the benefits of Second Life in education.

Second Life. (2009b). Spotlight on Education. Retrieved 11/22, 2010, from http://education.secondlife.com/?lang=en-US

Summary:

This website provides tools and guides for students and professors for teaching and learning in Second Life.

Relevance:

We will have to look at this and use it as a source when recommending Second Life or creating guides for using it.

SL Actions (2009).*Research conference in the second life world.* Retrieved 11/12, 2010, from http://coresl.edc.polyu.edu.hk/SLActions/HKChapter.html

Website of the first virtual research conference which took place in the virtual campus of PolyU in Second Life. This virtual conference lasted 48 hours.

Summary:

This is the website of the first virtual research conference which took place in the virtual campus of PolyU in Second Life. This virtual conference lasted 48 hours.

Relevance:

The outcomes of this conference will be used to assess the benefits and issues associated with Second Life.

The trial. (2009). Retrieved 11/7, 2010, from http://www.eportfolios.net.au/index.php/the-trial.

Summary:

This article discusses Rosny College's implementation of a e-Portfolio trial called a Skillsbook. Using the internet as a resource for school work was a new avenue that Rosny College had never used before. Rosny College progressed its system by taking in student and faculty feedback. Faculty benefited from the use of these "Skillsbook" because they could see students work throughout the entire year.

Relevance:

Rosny College implemented e-Portfolios as a new technology and was able to collect

student and faculty feedback. We could use it as a guide for the implementation of new technologies into a collegiate setting.

Van Raaij, E. M., & Schepers, J. J. L. (2008). The acceptance and use of a virtual learning environment in China. *Science Direct: Computers & Education, 50*(3), 838-852. Retrieved 11/8, 2010, from www.elsevier.com/locate/compedu.

Virtual World Watch. (2008). *The autumn 2008 snapshot of UK higher and further education developments in second life.* Retrieved 11/9, 2010, from www.eduserv.org.uk/foundation.

Summary:

This report sums up the investigation of the success of Second Life in teaching and learning in High Education in the United Kingdom. The report explores the opinions of the schools, professors and students on various specific topics from how they use Second Life to reasons for dropping it.

Relevance:

This report tells us about people's reactions in several universities in the UK. It will help us predict how Second Life might work for Lingnan University. It can also help to predict mistakes people could make and get ready for them before they happen.

Virtual World Watch. (2009). *The spring 2009 snapshot of virtual world use in UK higher and further education.* Retrieved 11/9, 2010, from www.eduserv.org.uk/foundation.

Summary:

This report sums up the investigation of the success of Second Life in teaching and learning in High Education in the United Kingdom. The report explores the opinions of the schools, professors and students on various specific topics from how they use Second Life to reasons for dropping it.

Relevance:

This report tells us about people's reactions in several universities in the UK. It will help us predict how Second Life might work for Lingnan University. It can also help to predict mistakes people could make and get ready for them before they happen.

Appendix A – Sponsor Description

Lingnan University (2010) is a small liberal arts institution that was founded in 1967 and located in Hong Kong, China. Lingnan's Vision Statement states that it seeks "to excel as an internationally recognized liberal arts university distinguished by outstanding teaching and the highest standards of scholarship" (Vision and Mission Statement). Its Mission shows that Lingnan is constantly seeking dynamic improvements for the betterment of the University: "Lingnan University is committed to the provision of quality education distinguished by the best liberal arts traditions. It adopts a whole-person approach to education which enables its students to think, judge, care and, ultimately, act responsibly in the changing circumstances of Hong Kong, the region and the world" (Vision and Mission Statement). Some of the key goals associated with this mission include improving the language skills of students, integrating community service into learning, and interacting with the Hong Kong community. Since 1991, Lingnan University has been a public institution that receives its funding from the Hong Kong government. More specifically, the funding is determined by the government's University and Polytechnic Grants Committee (UPGC).

Currently, there are 2,410 undergraduate students at the University, as well as 59 post-graduate students, where 65% are female and 35% are male (2010). Table A1 below shows the number of students in each undergraduate major. In each of the three Academic Units, there are a total of 226 professors with 87 Arts Programs faculty, 51 Business faculty, 32 Social Science Programs faculty, as well as 56 others. Additionally, there is a total of 390 non-academic employees who are comprised of administrative and support staff.

Table 1A: Undergraduate Students Per Major; (Lingnan University, 2010, Facts and Figures)

Major	Number of Students
Chinese	236
Contemporary English Studies	101
Contemporary English Studies and Education	30
Cultural Studies	114
History	100
Philosophy	108
Translation	211
Visual Studies	92
Social Science	564
Business Administration	854
Total	**2410**

Lingnan University (2010) is organized into three governing bodies, the duties and powers of which are outlined in the Lingnan University Ordinance. The three governing bodies are the Council, the Court, and the Senate, and each has a separate role in the development and operations of the University. Additionally, there is a President and Vice-President of the University who are appointed by both the Council and Court, and they have separate functions in addition to serving as members of Lingnan's governance. The Chancellor of Lingnan University acts as the Chief Executive and is responsible for selecting the appointed members of the three governing bodies.

The Council is the highest governing body at Lingnan University (2010) and is comprised of members nominated by the Chancellor, members nominated by the Council and the Senate, the President and Vice-President of the University, and the President of the Student Union. From the members, a Chairman, Deputy Chairman, and Treasurer are appointed by the Chancellor. The Council has the ability to create committees, and these committees do not include members of the Council. There are currently twelve committees that were established,

and each is charged with a different goal for the University. Some of the committees include the Academic Staff Review Committee, the Health and Safety Committee, and the Teaching, Learning and Information Services Management Board. These committees are led by a Chairperson who is selected by the Council. The Council exists to make all major decisions for the University such as purchasing land, investing money, and making capital improvements to the campus.

The next governing body at Lingnan (2010) is the Court, which is made up of members appointed by the Chancellor, members elected by the Council and the Senate, the President and Vice President, the President of the Student Union, a graduate student, and elected members of the staff. The Court exists mainly to make decisions about yearly budgeting for Lingnan. They also have the power to make and discuss motions regarding changes and additions to any University Policy.

The President and Vice President are appointed by the Council and Court to oversee all academic activity at the University (Lingnan University, 2010, Ordinance). They work most closely with the Senate, which is the body concerned with all academic issues and improvements to Lingnan. In addition to regulating academic policies, they also have the ability to discuss and affect academic programs, degree requirements, and admissions standards for the University. The three Academic Units at Lingnan University, Arts Programming, Social Science Programming, and Business, all have advisory boards for each of their respective departments and operate under the Senate. These advisory boards consist of faculty members from that department. There are ten different departmental programs at Lingnan University, ranging from Chinese to English Studies to Business.

Lingnan University (2010) has an affiliation with the JUCC, or Joint Universities Computer Center. The JUCC is comprised of members of all eight of the universities in Hong Kong, and exists "to provide computing and information technology services for its members with an aim to further the development of information technology and services in the education community in Hong Kong." The organization works with the education community to assist in the development of technology in Hong Kong Universities. Representatives from Lingnan's Information Technology Services Center work with JUCC to accomplish this objective and make improvements to the technology used in education.

Additionally, Lingnan University (2010) developed a Strategic Plan for the years ranging from 2009 to 2016. This plan highlights the goals of the institution during that time period. A key point mentioned in the strategic plan is that the University would like to further develop students' knowledge and understanding of technologies. The plan also encourages the Information Technology Services Center to grow and expand to provide further technology to students.

The Teaching and Learning Centre, TLC, at Lingnan University (2010) serves the University through providing technological support for teachers for use in their courses. David Kennedy is the director of the Centre, and he works along with nine other employees such as consultants, research assistants, and educational development officers. The TLC offers seminars and resources for the faculty of Lingnan University to assist the integration of technology into classrooms.

Appendix B – What Makes an IQP?

An Interactive Qualifying Project (IQP) is an interdisciplinary project that deals with the relationship of science and technology with social issues that can be solved through the use of research, analysis, and recommendations. The project starts with a problem that has to be identified using given data. Investigation of current research done on the topic allows for an understanding of the problem and the steps needed to create a solution. Once the problem is found, a goal is created and from this goal a list of objectives is formulated to help achieve the goal.

Our project deals with using virtual technologies in a classroom setting as a tool for learning. Our goal is to gauge the impact that these technologies have on the students and faculty. The impact that implementing these technologies will have on the students might be different from that from the faculty. How this impact affects the students and faculty will determine the successful or failure of the technologies used as a learning tool. To achieve our goal extensive background knowledge is required on different learning styles and the technologies that we will be using. From this knowledge, we will develop methods to achieve our goal such as focus groups, surveys and user guides. Focus groups and surveys will be used to obtain the opinions of the student and faculty about these technologies with regard to their attitudes, perceptions, and motivations. User guides will be used to make the addition of virtual learning environments simpler for both students and faculty.

This project is an IQP because it is trying to solve a social and technical problem of improving classroom learning by using virtual learning technologies such as Second Life, iPads and Moodle. The project features extensive background research in order to determine the research gap that currently exists for virtual learning environments. That information was used

to formulate methods that will be carried out at Lingnan University where recommendations will be made as a potential solution to their problem. Although this project is being carried out at a specific University, the results and recommendations of this IQP should be able to be used in a more broad sense at other educational institutions. The result of this project will be properly documented along with all of the background research and methods.

Appendix C: Draft of Interview Protocol

1. Steps to take to set up the Interview:
    1.1. Get into contact.
    1.2. Ask their permission to interview, discuss the topics for the interview, and clarify what the information they provide will be used for.
    1.3. Make it clear that they do not need to interview with our group.
    1.4. If permission to interview is given, continue communication. Otherwise, thank the person for their consideration, and stop communication.
    1.5. Reach a time and location convenient for the interviewer and interviewee.
2. During the interview:
    2.1. Two team members will be present at each interview.
    2.2. Exchange introductions at the beginning of the interview.
    2.3. Make it clear the interviewee does not need to answer any question asked.
    2.4. Make it clear the interviewee can leave at any time if he wishes to.
    2.5. Ask the interviewee if he wishes to keep his identity a secret.
    2.6. Assign each team member a role during the interview:
        2.6.1. Ex: Matt will ask questions, and Lauren will take notes.
        2.6.2. Inform the interviewee of each team member's roles.
    2.7. Once the roles are established, begin asking the prepared questions.

Faculty Questions

- What is your experience Second Life?
- What is your experience with Moodle?
- Have you ever used Second Life with teaching? If so, for what purpose and how often?

- Have you ever used Moodle with teaching? If so, for what purpose and how often?
- Are there any other technologies that you use with teaching? If so, explain which technologies and why you chose to utilize them.
- What are your feelings about using technology in teaching?
- Do you have any concerns regarding the use of Second Life with teaching?
- Do you have any concerns regarding the use of Moodle with teaching?
- Is the amount of Second Life in teaching is appropriate? Why or why not?

Student Questions

- What is your experience Second Life?
- What is your experience with Moodle?
- Have you ever taken a course that incorporated Second Life?
- Have you ever taken a course that incorporated Moodle?
- What are your feelings about taking courses that use technology?
- Do you have any concerns regarding the use of Second Life in your courses?
- Do you have any concerns regarding the use of Moodle in your courses?
- Is the amount of Second Life in teaching is appropriate? Why or why not?

Appendix D: Draft of Focus Group Questions

Faculty Focus Group

1. Talk about your experience using Second Life
2. For those who have had experiences in Second Life, what did you gain? What would you have liked to gain?
3. Have you seen any problems with Second Life in general or used as a learning tool?

Student Focus Group

1. Talk about your experience using Second Life
2. What did you gain? What would you have liked to gain?
3. Was your experience positive or negative?
4. What other subjects, if any, could benefit from a Second Life experience?

Appendix E: Draft of Student Surveys

TLC Survey of students in course using Moodle discussion forums rated by participation

Course Code: _____

The TLC department values your feedback to help improve the quality of instruction at Lingnan University.
Please consider your answers carefully and thoughtfully. This survey is confidential and anonymous.
Please use a black / blue pen or an HB pencil to answer all questions by filling the oval that corresponds with your opinion.

	All Oral	Mostly Oral	Half Oral / Half Online	Mostly Online	All Online
My course discussion activities have been:	O	O	O	O	O

	None	A little	Some	A lot	All
How much of your course time has been discussing?	O	O	O	O	O

How much have your course discussion activities helped you to:

	None	A little	Some	A lot	All
Learn to collaborate in a group to socially develop understanding	O	O	O	O	O
Become more engaged with the course content and concepts	O	O	O	O	O
Become more motivated to participate	O	O	O	O	O
Increase your awareness of other perspectives	O	O	O	O	O
Develop your critical & reflective thinking skills	O	O	O	O	O
Achieve student-centered learning	O	O	O	O	O
Improve your ability to express yourself	O	O	O	O	O
Develop your academic/intellectual leadership	O	O	O	O	O
Achieve the course learning outcomes	O	O	O	O	O
Enjoy the course	O	O	O	O	O

TLC Survey of students in course using Second Life

Course Code: _____

The TLC department values your feedback to help improve the quality of instruction at Lingnan University.
Please consider your answers carefully and thoughtfully. This survey is confidential and anonymous.
Please use a black / blue pen or an HB pencil to answer all questions by filling the oval that corresponds with your opinion.

	All Oral	Mostly Oral	Half Oral / Half Online	Mostly Online	All Online
My course discussion activities have been:	O	O	O	O	O

	None	A little	Some	A lot	All
How much of your course time has been discussing?	O	O	O	O	O

How much have your course discussion activities helped you to:

	None	A little	Some	A lot	All
Learn to collaborate in a group to socially develop understanding	O	O	O	O	O
Become more engaged with the course content and concepts	O	O	O	O	O
Become more motivated to participate	O	O	O	O	O
Increase your awareness of other perspectives	O	O	O	O	O
Develop your critical & reflective thinking skills	O	O	O	O	O
Achieve student-centered learning	O	O	O	O	O
Improve your ability to express yourself	O	O	O	O	O
Develop your academic/intellectual leadership	O	O	O	O	O
Achieve the course learning outcomes	O	O	O	O	O
Enjoy the course	O	O	O	O	O

TLC Survey of students in course using iPad

Course Code: _____

The TLC department values your feedback to help improve the quality of instruction at Lingnan University.
Please consider your answers carefully and thoughtfully. This survey is confidential and anonymous.
Please use a black / blue pen or an HB pencil to answer all questions by filling the oval that corresponds with your opinion.

	All Oral	Mostly Oral	Half Oral / Half Online	Mostly Online	All Online
My course discussion activities have been:	O	O	O	O	O

	None	A little	Some	A lot	All
How much of your course time has been discussing?	O	O	O	O	O

How much have your course discussion activities helped you to:

	None	A little	Some	A lot	All
Learn to collaborate in a group to socially develop understanding	O	O	O	O	O
Become more engaged with the course content and concepts	O	O	O	O	O
Become more motivated to participate	O	O	O	O	O
Increase your awareness of other perspectives	O	O	O	O	O
Develop your critical & reflective thinking skills	O	O	O	O	O
Achieve student-centered learning	O	O	O	O	O
Improve your ability to express yourself	O	O	O	O	O
Develop your academic/intellectual leadership	O	O	O	O	O
Achieve the course learning outcomes	O	O	O	O	O
Enjoy the course	O	O	O	O	O